

CELL BIOLOGY AND CANCER		
New Mexico Science Content Standards– Grades 9 - 12		
Activity	Strand and Benchmark	Performance Standard
2, 3, 4	I – I – I – 1	Describe the essential components of an investigation, including appropriate methodologies, proper equipment, and safety precautions.
3, 4	I – I – I – 2	Design and conduct scientific investigations that include: testable hypotheses, controls and variables, methods to collect, analyze, and interpret data, results that address hypotheses being investigated, predictions based on results, re-evaluation of hypotheses and additional experimentation as necessary, and error analysis.
2, 3, 4	I – I – I – 3	Use appropriate technologies to collect, analyze, and communicate scientific data (e.g., computers, calculators, balances, microscopes).
2, 3, 4	I – I – I – 4	Convey results of investigations using scientific concepts, methodologies, and expressions, including: scientific language and symbols, diagrams, charts, and other data displays, mathematical expressions and processes (e.g., mean, median, slope, proportionality), clear, logical, and concise communication, and reasoned arguments.
2, 3	I – I – I – 6	Understand how scientific theories are used to explain and predict natural phenomena (e.g., plate tectonics, ocean currents, structure of atom).
2, 3, 4	I – I – II – 1	Understand how scientific processes produce valid, reliable results, including: consistency of explanations with data and observations, openness to peer review, full disclosure and examination of assumptions, testability of hypotheses, repeatability of experiments, and reproducibility of results.
1, 2, 3, 4	I – I – II – 2	Use scientific reasoning and valid logic to recognize: faulty logic, cause and effect, the difference between observation and unsubstantiated inferences and conclusions, and potential bias.
2, 3	I – I – II – 3	Understand how new data and observations can result in new scientific knowledge.
2, 3, 4	I – I – II – 4	Critically analyze an accepted explanation by reviewing current scientific knowledge.
1, 3, 4	I – I – III – 1	Create multiple displays of data to analyze and explain the relationships in scientific investigations.
3	I – I – III – 2	Use mathematical models to describe, explain, and predict natural phenomena.
3	I – I – III – 3	Use technologies to quantify relationships in scientific hypotheses (e.g., calculators, computer spreadsheets and databases, graphing software, simulations, modeling).

NEW MEXICO ALIGNMENT FOR NIH SUPPLEMENT CELL BIOLOGY AND CANCER

3	I – I – III – 5	Use mathematics to express and establish scientific relationships (e.g., scientific notation, vectors, dimensional analysis).
1, 2, 3	II – II – I – 9	Understand variation within and among species, including: mutations and genetic drift, factors affecting the survival of an organism, and natural selection.
2	II – II – II – 1	Know how DNA carries all genetic information in the units of heredity called genes, including: the structure of DNA (e.g., subunits A, G, C, T), information-preserving replication of DNA, alteration of genes by inserting, deleting, or substituting parts of DNA.
2	II – II – II – 4	Identify traits that can and cannot be inherited.
1, 2, 3	II – II – II – 5	Know how genetic variability results from the recombination and mutation of genes, including: sorting and recombination of genes in sexual reproduction result in a change in DNA that is passed on to offspring and radiation or chemical substances can cause mutations in cells, resulting in a permanent change in DNA.
2	II – II – II – 6	Understand the principles of sexual and asexual reproduction, including meiosis and mitosis.
2	II – II – III – 3	Describe the mechanisms for cellular processes (e.g., energy production and storage, transport of molecules, waste disposal, synthesis of new molecules).
2	II – II – III – 7	Describe how most cell functions involve chemical reactions, including: promotion or inhibition of biochemical reactions by enzymes, processes of respiration (e.g., energy production, ATP), and communication from cell to cell by secretion of a variety of chemicals (e.g., hormones).
2, 3	III – I – I – 2	Understand how advances in technology enable further advances in science (e.g., microscopes and cellular structure; telescopes and understanding of the universe).
2	III – I – I – 3	Evaluate the influences of technology on society (e.g., communications, petroleum, transportation, nuclear energy, computers, medicine, genetic engineering) including both desired and undesired effects, and including some historical examples (e.g., the wheel, the plow, the printing press, the lightning rod).
5	III – I – I – 5	Understand that applications of genetics can meet human needs and can create new problems (e.g., agriculture, medicine, cloning).
5	III – I – I – 9	Describe how scientific knowledge helps decision makers with local, national, and global challenges (e.g., Waste Isolation Pilot Project [WIPP], mining, drought, population growth, alternative energy, climate change).
2	III – I – I – 10	Describe major historical changes in scientific perspectives (e.g., atomic theory, germs, cosmology, relativity, plate tectonics, evolution) and the experimental observations that triggered them.
2, 5	III – I – I – 15	Identify how science has produced knowledge that is relevant to individual health and material prosperity.

New Mexico Mathematics Content Standards – Grades 9 - 12		
Activity	Benchmark	Performance Standard
1, 3	2.A.6	Represent and analyze relationships using written and verbal expressions, tables, equations, and graphs, and describe the connections among those representations.
1, 3	2.A.7	Know, explain, and use equivalent representations for the same real number including: integers, decimals, percents, ratios, scientific notation, and numbers with integer exponents.
3	2.B.3	Describe the concept of a graph of a function.
3	2.B.7	Identify the independent and dependent variables from an application problem (e.g., height of a child).
3	2.C.2	Use a variety of computational methods (e.g., mental arithmetic, paper and pencil, technological tools).
3	2.D.2	Solve routine two- and three-step problems relating to change using concepts such as: exponents, factoring, ratio, proportion, average, and percent.
3	5.A	Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.
3	5.A.3	Know the characteristics of a well-designed and well-conducted experiment: differentiate between an experiment and an observational study, and recognize sources of bias in poorly designed experiments.
3	5.B.1	Understand the meaning of measurement data and categorical data, and of the term 'variable.'
1, 3	5.C	Develop and evaluate inferences and predictions that are based on data.
3	5.C.2	Draw conclusions concerning the relationships among bivariate data: make predictions from a linear pattern in data, determine the strength of the relationship between two sets of data by examining the correlation, and understand that correlation does not imply a cause-and-effect relationship.
3	5.C.3	Use simulations to explore the variability of sample statistics from a known population and construct sampling distributions.
3	5.D.2	Understand the concept of probability as relative frequency.
New Mexico Language Arts Content Standards – Grades 9 & 10		
Grade 9		
Activity	Benchmark	Performance Standard
All activities	I – B – 2	Synthesize a variety of types of visual information including pictures and symbols.

NEW MEXICO ALIGNMENT FOR NIH SUPPLEMENT CELL BIOLOGY AND CANCER

All activities	I – C – 2	Support informed opinions by providing relevant and convincing reasons, using various types of evidence, language, and organizational structure, and demonstrating an awareness of possible questions, concerns, or counter-arguments.
All activities	I – D – 1	Explain meaning, describe processes, and answer research questions to inform others by: demonstrating the ability to read and listen to explanatory texts using appropriate preparation, engagement, and reflection, demonstrating comprehension of major ideas, summarizing major steps, and determining accuracy and clarity of the selection.
All activities	I – D – 5	Use discussion with peers as a way of understanding information.
2, 3, 5	I – D – 6	Effectively use a variety of interactive technologies to enhance understanding of reading selections (e.g., internet, email, CD-ROM, on-line publications, digital images, and video).
All activities	II – A – 1	Evaluate personal effectiveness in group discussions and make corrections as necessary.
All activities	II – A – 2	Ask questions to broaden and enrich discussions.
1, 3, 5	II – A – 3	Express an informed opinion that clearly states a personal view, is logical and coherent, and engages the reader's interest.
Grade 10		
Activity	Benchmark	Performance Standard
All activities	I – A – 2	Respond reflectively (through small group discussion, class discussion, journal entry, essay, letter, dialogue) to written and visual texts.
3, 4, 5	I – A – 3	Create responses that evaluate problems and offer solutions to a reader or listener by: clearly stating the problem and relevant issues, determining the significance of the problem, focusing on a neutral audience, logically organizing the solutions for a specific audience, offering and evaluating effective solutions, and creating a sense of resolution or closure.
2, 3, 4, 5	I – B – 3	Use multiple resources to gather information to evaluate problems, examine cause and effect relationships, and answer research questions to inform an audience.
3, 4, 5	I – C – 1	Examine controversial issues by: sharing and evaluating personal response, researching and summarizing data, developing a framework in which to discuss the issue (creating the context), compiling personal responses and researched data to organize the argument, and presenting data in various forms (e.g., graph, essay, speech, video).
All activities	I – D – 1	Pose questions prompted by text and research answers by: accessing cultural information or explanations from print and non-print media sources and prioritizing and organizing information to construct a complete and reasonable explanation.

NEW MEXICO ALIGNMENT FOR NIH SUPPLEMENT CELL BIOLOGY AND CANCER

1, 2, 3, 5	II – A – 1	Produce responses to editorials/literature for a neutral audience by providing: a clearly stated position or proposed solution and relevant, reliable support.
New Mexico Health Content Standards – Grades 9 - 12		
Activity	Benchmark	Performance Standard
1, 3, 5	1.A	Differentiate between risks and benefits regarding choices in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being.
5	1.B	Identify alternatives to health risk behaviors in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being (i.e. abstinence, condom use, other pregnancy prevention methods, selection of healthy food choices, “natural highs”, etc.).
1, 3	1.F	Identify and analyze how social systems, peer pressure, and family history relate to mental, emotional, social, and physical health throughout life.
1, 3, 5	1.G	Describe the relationship between actions and consequences in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being and the impact on mental, emotional, social, and physical health throughout life (i.e. unintended pregnancy, STIs, HIV, chronic diseases, addiction, intentional and unintentional injuries, depression, suicide, etc.).
1, 3, 5	1.H	Explain the relationship between risk behaviors and health behaviors in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being (i.e. drinking and sexual behavior, lack of physical activity/nutrition choices and chronic diseases, etc.).
1, 2, 3, 5	1.K	Identify and analyze health behaviors in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being on the functioning of body systems (i.e. physical activity and the respiratory system, contracting a sexuality transmitted disease, the reproductive system, etc.).
2, 3	1.O	Describe how untreated health conditions can affect the functioning of body systems (i.e. an untreated sexually transmitted infection on the reproductive system, untreated asthma on the respiratory system, etc.).

NEW MEXICO ALIGNMENT FOR NIH SUPPLEMENT CELL BIOLOGY AND CANCER

3, 5	1.T	Identify how family, peer and community factors influence personal health choices in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being (i.e. religion, culture, family values, budget, etc.).
1, 2, 3, 5	1.U	Identify and analyze how environmental influences can be helpful or a hindrance to healthy behaviors (i.e. cultural, family history, socio-economic status and social norms on choices for meals, relationships, physical activity, etc.).
1, 3, 5	1.V	Analyze how environmental influences affect behavior in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being (i.e. riding a bike vs. driving a car, personal relationships, etc.).
1, 3, 5	1.W	Describe and analyze how behaviors practiced early in life can potentially affect health problems during adulthood in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being (i.e. smoking as a teenager and lung disease, poor nutritional choice and lack of physical activity and chronic diseases, sexual activity/unprotected sex and teen pregnancy/STIs/HIV, etc.).
5	1.AA	Research local, state, and national regulations and policies that influence health promotion and disease prevention in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being.
5	1.BB	Identify how policies are developed that influence health promotion and disease prevention in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being.
3, 5	1.DD	Analyze how research and medical advances can influence health promotion and disease prevention in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being (i.e. new treatment in diabetes control, etc.).
4	2.B	Evaluate health information products and services advertised by media.
3, 4, 5	2.C	Demonstrate the ability to evaluate health information in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being.
4	2.I	Evaluate the characteristics media uses to influence the selection of health products and services.
3, 4, 5	2.L	Demonstrate and discuss ways to avoid risky behavior in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being.
1, 3, 4, 5	3.A	Analyze the significance of personal responsibility and consequences for healthy behaviors in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being.

NEW MEXICO ALIGNMENT FOR NIH SUPPLEMENT CELL BIOLOGY AND CANCER

1, 3, 4, 5	3.C	Differentiate among health behaviors and health outcomes in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being (i.e. the relationship between physical activity, nutrition and chronic disease; the relationship between sexual activity and teen pregnancy, etc.).
1, 3, 4, 5	3.G	Identify consequences of risky and harmful behaviors on self and others in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being.
3, 4, 5	4.A	Explain how cultural practices (both positive and negative) in the school and community contribute to health, safety and personal choices in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety, mental, social and emotional well-being.
4	4.F	Analyze sources that can help to determine if media messages are true or false.
4	4.H	Analyze the purposes for technology and its impact on personal, family, peer and community health in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety, mental, social and emotional well-being (i.e. internet, medical, conveniences, communication, etc.).
3, 4, 5	5.L	Describe and analyze risky situations in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being and identify appropriate responses.
4, 5	6.A	Analyze and demonstrate strategies used to make healthy decisions in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety, mental, social and emotional well-being.
3, 4, 5	6.B	Describe health issues that require decision making in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental, social and emotional well-being.
1, 3, 4, 5	6.D	Predict how specific decisions result in various consequences in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being (i.e. the decision to use a condom if sexually active will help prevent an unwanted pregnancy or sexually transmitted infection, the decision not to drink at the party will help prevent making other risk taking decisions while intoxicated, etc.).
1, 3, 4, 5	6.F	Predict and analyze how personal decisions in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being contribute to the well being of self, family, peers, and communities.

NEW MEXICO ALIGNMENT FOR NIH SUPPLEMENT CELL BIOLOGY AND CANCER

1, 3, 4, 5	6.G	Analyze the relationship between health behaviors and personal outcomes in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being.
1, 3, 4, 5	7.B	Define and analyze information and opinions about health issues in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety, mental, social and emotional well-being.
5	7.D	Role-play and analyze how to help others make healthy choices in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being.
5	7.E	Role-play and analyze how to work cooperatively when advocating for healthy individuals, families and schools in the areas related to sexuality; nutrition; alcohol, tobacco, and other drug use; physical activity; personal safety; mental; social and emotional well-being.
5	7.G	Create positive health messages in the areas related to sexuality; nutrition; alcohol; tobacco, and other drug use; physical activity; personal safety; mental, social and emotional well-being.